

## **REMARKS**

In response to the Non-Final Office Action dated August 10, 2009, the Applicants request reconsideration based upon at least the above amendments and following remarks.

Claims 1-6 are pending in the present application, and Applicants respectfully submit that the claims, as presented herein and in conjunction with the following remarks, are in condition for allowance.

The Applicants gratefully acknowledge that this Office Action has been made non-final as a result of the Examiner's inadvertent omission of any rejection to claims 3 and 4 in the last Office Action. The Applicants again thank the Examiner for indicating that claims 5 and 6 are allowed.

Claims 1 and 2 have been canceled, leaving claims 3-6 pending.

Applicants therefore respectfully request reconsideration of the claims, including claims 3 and 4.

### **Claim Rejections Under 35 U.S.C. § 103**

For an obviousness rejection to be proper, the Examiner is expected to meet the burden of establishing why the differences between the prior art and that claimed would have been obvious. (MPEP 2141(III)) "A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). To find obviousness, the Examiner must "identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does." *Id.*

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wei et al. (U.S. Patent No. 5,480,810, hereinafter "Wei") in view of Yamazaki (U.S. Patent 6,239,470, herein "Yamazaki") and Sakaguchi, et al. (U.S. Patent No. 6,453,008, hereinafter "Sakaguchi"). The Examiner states that Wei discloses most aspects of the invention and *admits that Wei does not disclose the*

*passivation layer on the semiconductor layer, the data wire and drain electrode and a light blocking layer covering the photodiode and disposed directly on the passivation layer and the bias signal line.* The Examiner states that Yamazaki teaches a light blocking layer 214 directly on a passivation layer. (Office Action dated August 10, 2009, p. 3) The Examiner further states that it would have been obvious to have a light blocking layer “as taught by Yamazaki in the device of Wei et al. to archive [achieve] high performance.” (Office Action dated August 10, 2009, p. 3) The Examiner also states that Sakaguchi teaches forming a light blocking layer covering photodiodes and that it would have been obvious to form a light blocking layer covering photodiodes as taught by Sakaguchi in the device of Wei. (Office Action dated August 10, 2009, p. 3) Applicants respectfully traverse for at least the following reasons.

First, it is respectfully noted that claims 1 and 2 have been canceled rendering any rejection thereto moot.

Second, a feature of claim 3 is that a bias signal line comprises a light blocking layer that covers a photo diode. Although Wei, Yamazaki, and Sakuguchi may disclose a light blocking layer covering a photo diode, neither reference, alone or in combination, disclose a bias signal line comprising a light blocking layer that covers a photo diode. In fact, the Examiner admits that the bias signal line doesn’t comprise a light blocking layer. More specifically, the Examiner states in the Response to Arguments on page 5 of the Office Action that “[t]he light blocking layer would be directly on said passivation layer and the bias line in Wei et al. when combined with the features of Yamasaki and Sakaguchi et al.”

In particular, the Examiner admits on page 3 of the Office Action that Wei does not disclose a light blocking layer covering the photodiode and disposed directly on said passivation layer and the bias signal line 166. However, the Examiner alleges that FIGS. 4 and 5 of Yamazaki discloses a light blocking layer 214 directly on said passivation layer to achieve high performance (column 1, lines 42 and 46). Lastly, the Examiner states that Sakaguchi teaches forming a light blocking layer covering

photodiodes 1A to provide a means to reduce [noise] due to dark current (column 4, lines 63-67).

The Applicants disclose a TFT array panel for an X-ray detector comprising a dummy pixel for detecting leakage current. (p. 4, line 3-6) In an embodiment as claimed in claims 3 and 4, the light blocking member 196 is formed of the same layer as a bias signal line 190. (p. 7, lines 4-5 and Fig. 6) Accordingly the Applicants claim a thin film transistor array panel comprising a bias signal line disposed directly on the passivation layer, connected to the second electrode through the contact hole and comprising a light blocking layer which covers the photo diode, as recited in claim 3.

Yamazaki discloses a configuration “applicable to flat panel displays.” (Yamazaki, col. 1, lines 11-13) Yamazaki discloses a light shielding film must be provided to prevent light from entering TFTs in a pixel region and to cover peripheral edge regions of pixel electrodes. (Yamazaki, col. 1, lines 23-31) Yamazaki states that the disclosed configuration solves the problem of capacity generated between a masking film and TFTs “to achieve high performance *as an active matrix display*.” (Yamazaki, col. 1, lines 43-46, emphasis added) Yamazaki thus discloses a light shielding film 214 over a TFT. (Yamazaki, Fig. 5D, for example) Yamazaki also states that the invention is applicable to active matrix liquid crystal displays and EL displays. (col. 7, lines 38-39) Yamazaki does not disclose or suggest a photo diode, application of the light shielding film 214 to a photo diode or application in a device other than an active matrix display.

Yamazaki does not cure the deficiencies of Wei for at least the following three reasons. First, the Applicants traverse because Yamazaki is non-analogous art. For the purposes of evaluating obviousness of claimed subject matter, the particular references relied upon must constitute “analogous art”. *In re Clay*, 966 F.2d 656, 659, 23 U.S.P.Q.2d 1058, 1060-61 (Fed. Cir. 1992). The art must be from the same field of endeavor, or be reasonably pertinent to the particular problem with which the inventor is involved. *Id.* The Applicants claim a thin film transistor for an X-ray detector comprising a photo diode. Yamazaki discloses a black matrix for TFTs

applicable to flat panel displays, specifically active matrix liquid crystal displays and EL displays. (col. 7, lines 38-39) Because Yamazaki pertains to display technology, and because Yamazaki discloses shielding of visible light, one of ordinary skill in the art would not have been prompted to consider modification of the radiation imager of Wei in view of Yamazaki to block X-rays.

Second, Yamazaki does not disclose if the chromium film disclosed in Yamazaki (Yamazaki, col. 7, line 20) would block X-rays, thus the disclosure of Yamazaki would have failed to provide a skilled artisan a reasonable expectation of success that a chromium film would block X-rays.

Third, Yamazaki does not disclose or suggest a bias signal line, thus does not disclose or suggest a bias signal line comprising a light blocking layer that covers a photo diode. Yamazaki discloses a light shielding film on a TFT. (Yamazaki, Fig. 5D) Because Yamazaki teaches a light shielding film to prevent light from entering TFTs, or to cover peripheral edge regions of pixel electrodes (Yamazaki, col. 1, lines 23-31), one of ordinary skill in the art would not have been prompted by Yamazaki to consider modification of the radiation detector of Wei to arrive at a bias signal line disposed directly on the passivation layer, connected to the second electrode through the contact hole and comprising a light blocking layer which covers the photo diode, as recited in claim 3.

Sakaguchi does not cure the deficiencies of Wei, alone or in combination with Yamazaki. Sakaguchi discloses an X-ray detector comprising a “shield[ed] pixel electrode 1A.” (Sakaguchi, col. 7, line 26 and Fig. 3) Sakaguchi discloses that the shield pixel electrode 1A can comprise a cover made of lead. (col. 7, line 35) Sakaguchi does not disclose or suggest a bias signal line disposed directly on the passivation layer, connected to the second electrode through the contact hole and comprising a light blocking layer which covers the photo diode, as recited in claim 3.

As noted above, because Yamazaki is non-analogous art, one of ordinary skill in the art would not have been prompted to combine Yamazaki, which discloses an active EL display, with the radiation detectors of Sakaguchi and Wei.

Furthermore, even if one of ordinary skill in the art were to combine these references, the result would be distinct from the claimed invention. Based on Yamazaki, a skilled artisan would have been prompted to modify Wei to include the light shielding film at each TFT throughout the detector array. Based on Sakaguchi, one of ordinary skill in the art would have been prompted to cover a portion of the pixel electrodes with a cover, such a lead cover.

Therefore, none of Wei, Yamazaki and Sakaguchi, alone or in combination, teach or suggest **a bias signal line disposed directly on the passivation layer, connected to the second electrode through the contact hole and comprising a light blocking layer which covers the photo diode,** as recited in claim 3.

Thus, it is respectfully submitted that the instant claims, including independent claim 3, and claim 4, which depend from claim 3, is patentable over Wei, Yamazaki and Sakaguchi.

Accordingly, it is respectfully requested that the rejection of claims 1-4 under 35 U.S.C. § 103(a) be withdrawn and the instant claims be allowed to issue.

**Conclusion**

All of the rejections are respectfully submitted as herein overcome. In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. No new matter is added by way of the present Amendments and Remarks, as support is found throughout the original filed specification, claims and drawings. Prompt issuance of Notice of Allowance is respectfully requested.

The Examiner is invited to contact Applicants' representatives at the below listed phone number regarding this response or otherwise concerning the present application.

Applicants hereby petition for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

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